

27 December 1960

MEMORANDUM FOR: Chief, EE/G

VIA: Chief, EE

SUBJECT: Proposed Airborne ELINT Collection
in East Germany -- [REDACTED]

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1. On 15 April 1960 the Director of Communications was requested to develop equipment for the clandestine intercept of SAM-related guidance signals believed to be associated with the Soviet FRUITSET radar. On 3 May 1960, the Director of Communications replied indicating that he was proceeding with the development of an interim airborne collection system, the CS-29, intended for airborne courier flights over the Giau area and that it would be designed in consonance with current estimates of the FRUITSET guidance signal characteristics. This interim airborne course of action is proposed as a measure which may produce definitive results at a comparatively early date and at a minimum cost. An alternate approach to the problem, which is also being developed, involves the mounting of a series of clandestine, ground-based signal-sampling operations followed by the further development and/or modification of collection gear as indicated by the results of each operation, all leading to a successive-stage assembly of information concerning the target. This clandestine, ground-based approach is technically difficult, and by its very nature will consume considerable time in achieving final results. In contrast, OC's CS-29 airborne proposal provides for the use of on-the-shelf gear. In a discussion on 13 July 1960 among representatives of EE, OC, and FI/D, the OC proposal was recognized as a gamble but a worthwhile one because, among ELINT collection plans being implemented or considered, it alone offered immediate access to the target and consequently some chance of early solution to this collection problem.

2. Recently OC has advised FI/D that the CS-29 is expected to be ready for shipment to Germany during the last week of December 1960.

Prior to shipment, the system will have been subjected to tests by the manufacturer as well as by OC. Regarding the desirability of conducting further tests of the equipment employing an air platform against a similar U.S. installation, OC has stated and we concur that:

- a. U.S. SAM installations are inappropriate for such tests in that the known characteristics of U.S. guidance systems are at such variance with the assumed Soviet SAM characteristics that the special system developed to collect against FRUITSET would be useless against U.S. installations. Therefore, testing of the gear against U.S. installations is not merited.
- b. Those components of the system most vulnerable to damage by vibration have previously been subjected to "shake-table" tests. Therefore, the system is thought to be not liable to malfunction because of platform vibration.
- c. The unit is carefully masked against internally generated noise. Further testing and analysis to "finger-print" the characteristics of electromagnetic radiations peculiar to the gear and its air platform should wait for the installation of the gear aboard its platform aircraft.
- d. It is possible for the field to fabricate a signal generator to simulate FRUITSET guidance emissions so that the gear might be tested against it. However, the principal doubt related to the equipment is that the actual FRUITSET characteristics do not fall within the tolerances established by OSI. The chance of collection failure through malfunction of the CS-29 after it has been subjected to projected tests is relatively unimportant in comparison with the opportunity which might be lost during the construction phase of the new Berlin SAM defensive ring while the expected environment is being simulated and testing performed.

These reasons favor a decision to ship the collection system to Germany for installation and deployment without delay.

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3. It is envisioned that the operation will be carried out by personnel of [REDACTED] jointly with those of USAFE. This plan has been discussed with appropriate officers in Headquarters, USAF. The Air Force has indicated that aircraft are available which are suitable as CS-29 platforms and having regular flight schedules between [REDACTED]

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and Headquarters, USAFE, according to the following:

The diagram illustrates the experimental setup. A participant is seated at a table, looking at a screen. The screen shows a sequence of stimuli: a fixation cross, a target stimulus, and a distractor stimulus. The participant's response is recorded via a button press.

b. [REDACTED] are both suitable and either one may be used according to the mutual convenience of the [REDACTED] Installation and maintenance will be performed by CIA technicians. Use of the existing antenna facilities on the aircraft or the installation of new antennas as appropriate can be arranged between

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c. Collection will obtain on each flight of the platform aircraft. The equipment will be unattended except that it will be turned on by flight personnel for a 30-minute period immediately before arrival over and after take-off from the [REDACTED] field. Flight personnel will maintain appropriate logs to assist tape analysis.

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d. Recorder units will be exchanged between missions and tapes passed to the [REDACTED] for read-out, technical evaluation, and analysis. [REDACTED] will provide technical support based on preliminary analysis of tapes.

e. [REDACTED] will report results of its tape analysis for relay to Headquarters via [REDACTED], who will also report the number of missions flown on a weekly basis.

f. A CS-29 success or some other intelligence breakthrough on the FRUITSET guidance system will probably result in the modification or replacement of the CS-29 with other equipment for complementary collection missions. Should neither event occur, it is proposed that deployment of the CS-29 be continued for an extended, but definite, period -- 6 months. At the end of this time, results will be assessed with a view to deciding whether: (1) to continue operations without modification to the CS-29 or its deployment schedule; (2) to modify the CS-29 and/or deployment schedule and then resume operations; or (3) to discontinue operations.

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25X1D 4. It is recognized that good fortune must attend the deployment of the CS-29 for successful collection. Nevertheless, a quick reaction capability should be available to exploit an initial success. Such success will confirm the OSI inference that the guidance signal is

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megacycles. The airborne deployment of tunable equipment manned by experienced ELINT operators to determine the precise FRUITSET guidance signal characteristics is seen as the logical consequence of a CS-29 success. Between now and the time when a CS-29 success may be achieved, some answers to questions related to the FRUITSET guidance signal may have been provided by other collection efforts presently being implemented or under consideration. Such answers will, of course, modify the tunable equipment requirement and improve chances for ultimate solution of the Soviet SAM guidance signal problem. It is believed that USAFE will wish to continue collection employing the proposed courier flight and tunable equipment and probably will wish to augment the coverage using additional flights. It is believed that the [REDACTED] will wish to explore the problem of exploiting a CS-29 success with USAFE, considering personnel, electronic and photographic equipment, and aircraft to be employed. While most of the gear involved is readily available, some early development of special components may be called for to avoid prolonged delay between initial success and follow-up. Headquarters will provide any assistance requested.

25X1A 5. It is recommended that the Director of Communications be authorized to ship the CS-29 to the [REDACTED] without delay. It is further recommended that the [REDACTED] be directed to authorize the [REDACTED] to make the contacts and detailed arrangements according to the general guidance set forth in Paragraph 3 above. For its part, Headquarters, USAF, has indicated it will instruct USAFE to cooperate with the [REDACTED] in this endeavor.

25X1A 6. This project has been designated [REDACTED] for internal CIA use. The community cryptonym is [REDACTED]. For purposes of preparing a project outline and obtaining the necessary funds, a communications annex is attached covering the initial phase of the project, that is, the deployment of the CS-29 for one year.

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Attachment:

As stated above

Orig & 1 - addressee 1 - D/OC